



Visions of a Sustainable California

by Norman H. Brooks

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California—what is our vision of a sustainable world close to home?

This is the second special issue of *E&S* on the centennial symposium *Visions of a Sustainable World* held October 27-30, 1991 at the Beckman Auditorium. In the June issue, we focused on the world view, which was covered in the opening lecture and the sessions on the first two days. This issue contains summaries of the "California Day" at the symposium.

In devoting the third day of the symposium to California, the organizing committee (James Bonner, PhD '34, professor of biology, emeritus; Sunney Chan, the Hoag Professor of Biophysical Chemistry; Murray Gell-Mann, the Millikan Professor of Theoretical Physics and Nobel laureate; Paul MacCready, MS '48, PhD '52, president of AeroVironment, Inc.; Bruce Murray, professor of planetary science; and myself) wanted to see if our large, diverse state was behaving in a sustainable way or, at least, whether we could say that the problems were not getting any worse, and no crises were looming. If California, known for its strong environmental interests and supposedly enlightened state and local governments, cannot be a sustainable piece of the world, how could we expect the world, particularly the developing world, to heed our warnings? As Provost Paul Jennings put it in his introduction to the day's sessions: "We're looking at it from the point of view that the solution of local and regional problems is an essential ingredient to the solution of global problems. And California is closer to the future than many other places.

California has, in many ways, led the country and the world in running up against problems of importance to this conference and in trying to solve them."

With just one day to be devoted to California's prospects for sustainability, the committee had difficult choices about what issues to cover. California has a long agenda of short- and long-term economic, social, and environmental issues. The organizers decided to discuss only a few of these problems at the symposium in order to treat them in some reasonable detail. The focus was on growth and environmental quality, the latter being an area in which Caltech's Environmental Engineering Science program and the Environmental Quality Laboratory have been very active in teaching and research, contributing to the solution of some regional problems.

The first session considered population, economic growth, and urban sprawl: California's economy ranks seventh or eighth in the world among *nations*; can we have economic growth and job growth (the longer view as a prescription for prosperity) and still manage the environment in a sustainable way? The next session concerned energy, transportation, and air quality: Is urban sprawl so increasing our need for transportation that the prospect for generally clear air has become very hazy? The third session was about water—California's white gold: Is there not enough for agriculture and urban and environmental uses, or are the problems all institutional (such as impediments to value pricing and water markets)? The final session, "Realities for a Sustainable California," convened a panel of some of

Parker Dam on the Colorado River forms Lake Havasu behind it, from which water is pumped through the Colorado River Aqueduct to thirsty Los Angeles.

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the day's speakers to reflect on the day's earlier sessions and other problems not yet introduced.

In the year since the symposium the list of problems has regrettably grown much longer—the news has shown us the severe urban riots, the Landers earthquake (largest in 40 years in southern California), California's worst budget crunch since the Great Depression, the continuing downsizing of the aerospace industry, soaring unemployment (the rate of more than 10 percent is now far above the national rate), growing poverty in an increasingly two-class society, crises in school funding and educational performance, health care costing more but bypassing a growing fraction of our population, and no significant break in the longest drought in California's history. Before this past year, the seeds of these problems were all there, but they sprouted faster than expected.

In preparing this issue of *E&S* we decided to include some reaction to the events of the past year, rather than just summarizing the sessions presented in October 1991. In particular the two authored articles appearing in this issue have been updated by the speakers—Bruce Cain's talk about politics and demographics, and Roger Noll's on economic growth. In the summaries we have also mentioned recent relevant events, such as the passage and signing of the new Omnibus Water Act sponsored by Sen. Bill Bradley of New Jersey, which will for the first time make federal water available for water marketing and for urban and environmental uses in addition to agriculture.

The sessions demonstrated that California is facing some of its environmental problems—air quality and water management—with significant decade-by-decade progress, with the expectation that incremental solutions can lead the way to gradual improvements in the quality of the air and water environments. But unchecked incremental growth and development, along with social problems, might cancel environmental progress in the long run.

While we discuss how to make the world sustainable, here in California we still have a lot of self-examination to do. In the past California has been a leader with innovations to improve the quality of the environment (for example, the first emission-control standards for automobiles), and perhaps with enough foresight we can set a good example on the way toward sustainability.

Norman Brooks (PhD '54) is the James Irvine Professor of Environmental and Civil Engineering and executive officer for Environmental Engineering Science.

Acknowledgements

A number of sponsors helped Caltech celebrate its centennial with the *Visions of a Sustainable World* symposium. They included the Boone Family Trust, the Chevron Companies, the James Irvine Foundation, the Charles A. Lindbergh Fund, and the Lord Corporation. At the closing ceremony Sunney Chan, chair of the centennial steering committee as well as of the symposium planning committee, thanked the sponsors' representatives for their generous support and invited each of them to make brief comments.

Lynda Fetter of the Boone Family Trust spoke of her family's decision to help fund the symposium: "The reasons we wanted to do this are obvious. We have three sons. We're very, very interested and concerned about the world for them and for their children."

Paul MacCready read a statement from Chevron that said in part: "We at Chevron are struggling with many of the same issues, but we have made a start toward change, and you can help us with the challenges ahead. . . . Our hope is that conferences like this one can help move us beyond rhetoric toward productive problem solving on these important issues."

MacCready also spoke on behalf of the Lindbergh Fund, created after Charles Lindbergh's death by friends who had understood his message that "the human future depends on our ability to combine the knowledge of science with the wisdom of wildness. . . . We are delighted to help support this conference inasmuch as the conference and the Lindbergh Fund have the same mission: to get us to focus on the challenge of defining a desirable, sustainable future and then planning how to achieve it."

Donald Alstadt, chairman of the board of the Lord Corporation and a longtime friend of Caltech, ended his remarks paraphrasing Yeats, that "we must encourage the best to act with courageous conviction, and in some way quiet those who are full of nothing but passionate intensity. Thank you for allowing us to participate."

Chan himself spoke for the Irvine Foundation, explaining that it particularly wanted to support the California day because of its "dedication to enhancing the socioeconomic and physical quality of life throughout California and enriching the state's intellectual and cultural environment."